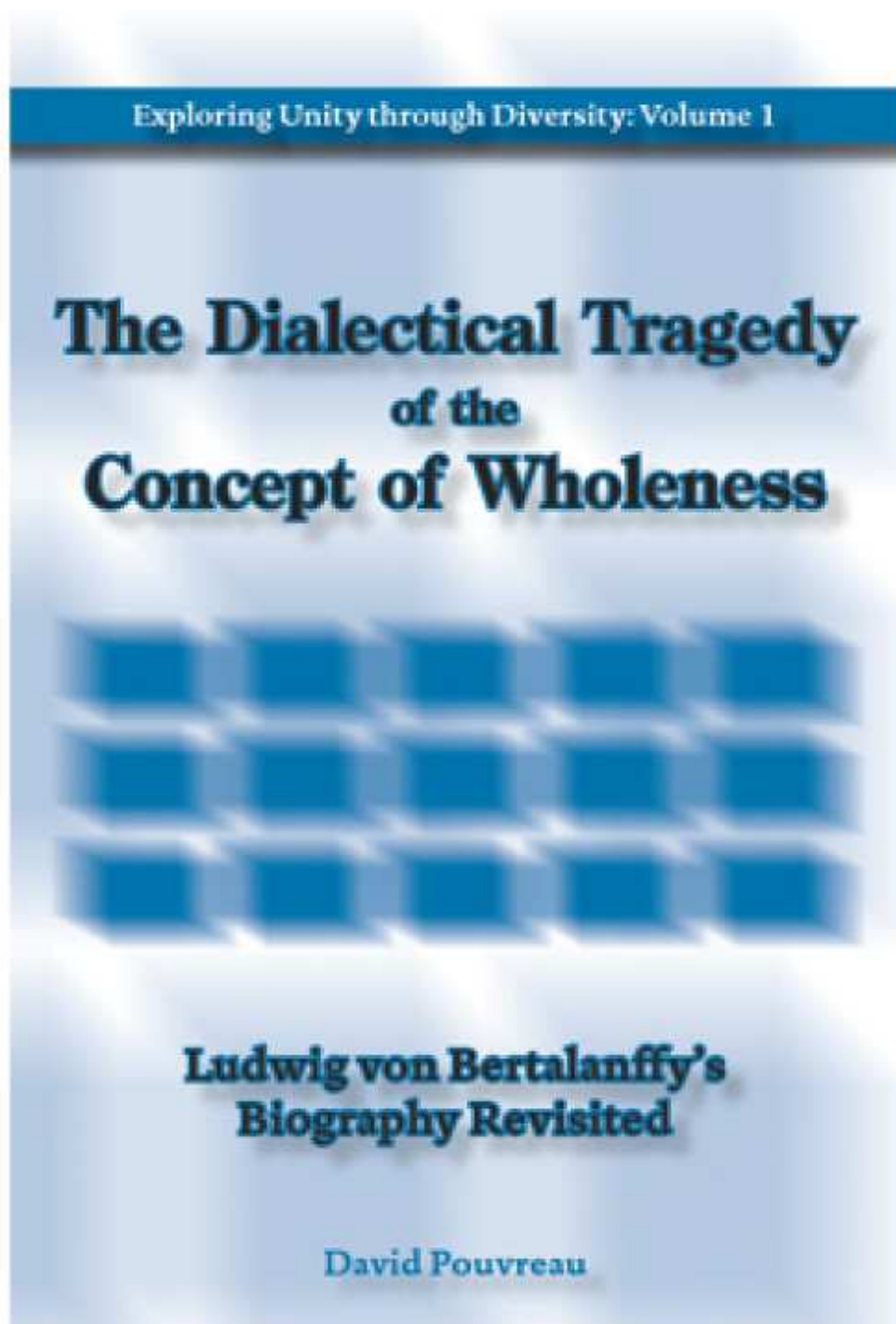


A review of "The Dialectical Tragedy of the Concept of Wholeness: Ludwig von Bertalanffy's Biography Revisited" written by David Pouvreau, published by ISCE Publishing ISBN 9780981703282 (2009) – Emergence: Complexity and Organization



Revelations

Ludwig von Bertalanffy is of course well known as the founder of the systems approach known as "General Systems Theory" (GST), and for his many publications in this area as well as in inaugurating and leading several of the large systems sciences associations. GST certainly ranks as one of the important precursors to modern complexity theory by setting the conceptual stage for many important developments in the latter. This excellent biography of Bertalanffy written by David Pouvreau (translated from the French by Elisabeth Schober) was prompted by two precipitating events. The first was the advent of several recent scholarly German language biographies of Bertalanffy written as doctoral theses. This research uncovered aspects of Bertalanffy's early career and work during WWII in Vienna. The second was the accidental discovery in 2004, in a second-hand bookstore in Buffalo, New York, of a large portfolio containing many letters sent by and received by Bertalanffy plus numerous books, preprints and related materials. These two events enabled Pouvreau to avoid a hagiography on the one side and a deprecating trashing of Bertalanffy on the other, an intention that appears, to this reviewer at least, to have been superbly accomplished.

But before getting into some of the details Pouvreau's biography I feel the need to admit that I came to this review with two dispositions regarding Ludwig von Bertalanffy and his work that have affected my reading of the biography. The first is that I have always found general systems theory (GST) to be a bit too, well, *general* for my tastes. Accordingly, GST has often left me rather cold with its, what I take to be, overly abstract formulations of its basic principles about the dynamics of systems, to such an extent I've often felt a particular dissatisfaction whenever reading anything of Bertalanffy. In that regard, Pouvreau's biography has been very helpful in fleshing-out some of these abstract GST principles by discussing their origin and development during Bertalanffy's long career. One case in point is that, whereas previously I had believed one of the limitations of GST lay in its not only not containing anything like the idea of emergence, I couldn't even see where there was could be any conceptual room in GST for emergent phenomena at all, I was pleasantly surprised to learn from reading Pouvreau's book that Bertalanffy and GST did in fact possess a cognate idea of emergence which he called "supra-individual entities" or "integrations of higher order" about which I'll say more about below. There were other similar, pleasant

surprises about his work as well which I will also remark upon below.

The second confession is that I knew very little about Bertalanffy's life before reading this biography, only the very broad outlines of it in relation to his general systems theory, which, again, never sparked me to want to read more about him.

Consequently, much of this biography came as a complete revelation to me, particularly Bertalanffy's undeniably close association with Nazism, an association that appears to have been of one cloth with his overall manipulative, petulant, opportunistic, and entitled personality dynamics, at least as Pouvreau has depicted the latter through his access to the many letters recently discovered. To be sure, Bertalanffy was no rabid Antisemitic Brownshirter denouncing Jews at every opportunity. But he certainly didn't hesitate to emphasize the pure Aryan heritage of his Hungarian nobility forebears (the "von" of his name), and to manipulate his varied affiliations with Nazism in ambitiously furthering his career in Vienna, and equally manipulative to quickly deny the extent of his flirtation with National Socialism during the denazification period after the War. This shouldn't be taken as implying that Pouvreau set out to do a hatchet job on either Bertalanffy's character or his work. Far from it, I have found Pouvreau's account level-headed and fair, only inferring troublesome elements of Bertalanffy's relation to National Socialism when there was sufficient evidence from letters, records, and the like. For, after all, the Nazis were phenomenal at bureaucracy and thereby great record keepers so that the horror of their genocidal policies is enshrined forever in all the ledger books they assiduously kept, including Bertalanffy's letters of application to the Nazi party and similar incriminating records.

“Integrations of Higher Order” and Emergence

As I mentioned above, I was surprised to learn that Bertalanffy had in fact included a conceptualization of emergence in his GST, indeed, from the very early stage of his career in his doctoral dissertation written in the mid-nineteen twenties. That dating places Bertalanffy's interest in emergence-like phenomena at roughly the same time as that first stage of emergentist thinking in England and the US, a movement known as Emergent Evolutionism which I have termed “proto-emergentism” (see Goldstein, 1999). Chief among the proponents of this proto-emergentism were the English and American philosophers and scientists, G. H. Lewes (who coined the term “emergent” in its technical sense), Roy Wood Sellars, Samuel Alexander, C. L. Morgan, and, most prominently, Alfred North Whitehead.

In the context of Bertalanffy's conceptualization of his own version of emergence,

Whitehead's work was particularly relevant since his emergentist metaphysics had a huge influence on the anti-reductionist oriented "Theoretical Biology Club" at Cambridge University which, included among its member the soon to become pre-eminent biologists and philosophers of biology, C. H. Waddington, Joseph Needham, and J. H. Woodger (see Depew & Weber, 1996). I mention this here since Pouvreau indicates how Woodger and Bertalanffy were to become life-long friends, Woodger often in the position of offering a helping hand to Bertalanffy and his family when they were struggling through the all too many difficult times they were having due to both large scale catastrophic events such as WWII and its aftermath, as well as Bertalanffy's frequent and nasty skirmishes with the many educational institutions of which he was on staff. Moreover, there seems to have been much intellectual interaction between Bertalanffy and Waddington, particularly evident in the famous Alpbach conference entitled "Beyond Reductionism" in 1969 which emphasized their mutual, strongly held anti-reductionist stances (Khalil & Boulding, 1996). Pouvreau points out that Woodger and Waddington introduced Bertalanffy to the writings of the British emergentists Morgan and Whitehead.

Bertalanffy's term for what the British and Americans were calling emergence was "integrations of higher order," a phrase included in the title of his doctoral dissertation: "Fechner and the Problem of Integration of Higher Order — An Attempt at an Inductive Metaphysics" (which is the English translation of Pouvreau's French translation of the original German, *Fechner und das Problem der Integrationen hoherer Ordnung — Ein Versuch zur induktiven Metaphysic*). According to Pouvreau, this dissertation cut across the fields of the metaphysics (particularly in regard to the theory of knowledge and the philosophy of culture) and biology, dealing explicitly with the issue of to what extent it was justified to consider "supra-individual entities" composed of living organisms as "integrations of higher order" since the former have their own individuality and laws. More generally, Bertalanffy's thesis addressed the issue of whether the world should be understood as a hierarchy of levels of organization, a theme that has been invoked in emergentist circles since the idea was first broached over a century ago. Fechner, of course, was well known for helping to originate the field of psychophysics in the mid-nineteenth century, and was much admired for his all around visionary genius.

Jean Piaget, the celebrated Swiss developmental psychologist, much admired this aspect of Bertalanffy's work believing it provided an authentic way station between mechanism and vitalism and thereby achieved what Emergent Evolutionism had only been able to promise but ultimately couldn't deliver because of the latter movement's

overly “phenomenological and irrational” perspective (Piaget, 1971).

By the way, Pouvreau also points out that Bertalanffy published an article around the same time based on his dissertation which was entitled *Die Einheit des Bildungstriebes* which Pouvreau translates, I think misleadingly, as “The Unity of the Drive of Education.” *Bildungstrieb* though was a major idea in early German Romanticist influenced biology, coined in the latter half of the eighteenth century by the German biologist Christian Blumenbach to capture the dynamics of a *formative drive* (*Bildungs* for “formative” and *trieb* for “drive”) in living organisms, an idea that was very influential on Kant’s thinking about the philosophical issues prompted by the distinction between the living and non-living (see Lenoir, 1982; Richards, 1987; Rousseau, 1992). Moreover, Pouvreau points out that Bertalanffy devised the idea of “anamorphosis” for the tendency towards an increase in order and complexity, surely a modern day equivalent of Blumenbach’s *Bildungstrieb*. At another point in the biography Pouvreau translates the German of Bertalanffy’s second book title, published in 1930, *Lebenswissenschaft und Bildung* as “Life Science and Education” even though it is clear from the description that Pouvreau gives of this book that a more appropriate term might again be “formation” as in the result of a *Bildungstrieb* or “formative drive”. Although “Bildung” is sometimes used for “education,” it is more likely that it was Blumenbach’s formative drive that Bertalanffy had in mind since his thesis on Fechner was obviously steeped in earlier biological theories. Although Pouvreau is evidently a careful researcher, infrequently his biography of Bertalanffy betrays some deficits in his knowledge of early biological thought as well as systems theory in general. Yet this in no way detracts from the otherwise solid approach he has taken in explicating Bertalanffy’s work in relation to his life.

A Long Career with Contacts with Many of the Great Thinkers of the Twentieth Century

It seems impossible to come to any kind of terms with Bertalanffy’s long and fruitful career without listing all the prominent thinkers with whom he was in contact with, a veritable “Who’s Who” of scientific and philosophical life not only in Austria and Germany but later on in England and the United States (where many of these same thinkers had taken refuge as they fled from Nazism. To do justice to these many thinkers that Pouvreau mentions, I am going to list them in order to give a sense of just how connected Bertalanffy was to great thinkers of his age:

- The zoologist Han Przibram who founded the Zoological Institute in Vienna where Bertalanffy had his typical push/pull relationship, and who later was killed at the

“model” death camp Theresienstadt;

- The prominent composer Hanns Jelinek;
- The controversial and tragic biologist Paul Kammerer (for a fascinating account of the controversy and tragedy of Kammerer, see Koestler,1973);
- The biologist, philosopher and systems thinker Paul Weiss (who incidentally claimed that Bertalanffy stole many of his ideas from his own work);
- The philosophers Moritz Schlick, Otto Neurath, Rudolf Carnap, and Carl Hempel, among the founders of the famous Vienna Circle (others who sometimes showed up were Kurt Gödel and Ludwig Wittgenstein);
- The celebrated morphologist Jan Versluys;
- The famous botanist Richard Wettstein;
- The renowned economist Friedrich von Hayek (two of whose publications were classic papers in *E:CO*, 9(1-2));
- The Gestalt psychologist Wolfgang Köhler who, Pouvreau points out, intended to extend the principles of Gestaltism to systems in general, what he called “systemology”;
- Kurt Lewin, another Gestaltist and founder of modern “group dynamics”;
- The very influential organicistic psychiatrist Kurt Goldstein;
- The philosopher of “as-if” Hans Vaihinger;
- The pre-eminent philosopher of science Hans Reichenbach, leader of the Berlin Circle;
- The neo-Kantian and vastly influential philosopher Ernst Cassirer (Bertalanffy himself wrote quite a bit about a “symbolic” approach to language, culture, and philosophy which I surmise had much to do with the influence of Cassirer’s famous book *The Philosophy of Symbolic Forms*) ;
- The eminent quantum physicist Pascual Jordan, who indeed did become a virulent Brownshirter who, it’s been speculated, didn’t win the Nobel Prize because of his Nazi past;
- The aforementioned J. H. Woodger as well as his colleague the famous embryologist and geneticist C. H. Waddington, another of the most important precursor thinkers to contemporary complexity theory;

- The English writer and psychedelic explorer Aldous Huxley (Bertalanffy even did a stint as a researcher into psychedelic drugs although this biography doesn't say one way or the other if that included his own personal experiences with hallucinogens);
- Nicholas Rashevsky at the University of Chicago, founder of mathematical biology and mentor of Anatol Rapoport, the key author of the article in this issue's Classic Paper's section—Pouvreau indicates that Rashevsky has used Bertalanffy's idea of "open systems" in the development of his own views on cell division, although there was strain between them (by this time one is no longer surprised at the number of colleagues Bertalanffy had strained relations with);
- The celebrated mathematician Herman Weyl at the Institute for Advanced Studies;
- Ilya Prigogine, the Nobel Prize winning physical chemist whose work in dissipative structures was thought by Bertalanffy to lend credence to his own emphasis on open systems and steady states;
- The American psychologist Abraham Maslow well known for his work in Third Force or Humanistic Psychology;
- The Psychiatrist Karl Menninger of the famous Menninger Clinic in Kansas;
- The philosopher and historian Hans Jonas, a Jewish student of Martin Heidegger who himself had to come to terms with the Nazism of his mentor, the moral midget of the Black Forest (my apologies for political incorrectness);
- Anatol Rapoport whose work is described in the Introduction to the Classic Paper of this issue of *E:CO*;
- Kenneth Boulding, the systems oriented economist and founder along with Bertalanffy and Rapoport of the International Society for Systems Science (ISSS);
- The theoretical biology Robert Rosen, another student of Rashevsky, who tried to put the essential dynamics of life into a mathematical logical formalism.

Of course, this is only a partial list and there could as well be a list of the many educational and research institutions that Bertalanffy worked at, but all colored with his same ambivalence of feeling never appreciated quite enough for his "genius".

Equally surprising to me were the unexpected interests of Bertalanffy, particularly his deep study and even publications on mysticism, especially of the Germanic kind of Meister Eckhart, Paracelsus, Jacob Böhme, as well as the work of Nicholas of Cusa and his idea of *coincidentia oppositorum* which Carl Jung made so much hay about.

The key ideas of GST can be traced back at least as far as Bertalanffy's dissertation

where, as I mentioned above, he spoke about his version of emergence, among other topics. Pouvreau spends a lot of time tracing two of the most important foundational conceptions of GST, conceptions that would extend beyond organic life as such to all organized systems, that of an "open" thermodynamic system remaining not at a static rest state but rather in a dynamic equilibrium, and that of a hierarchical order of organizing processes, integrating up the scale to the case of a progress towards a closer and closer dependence of part on the "logics of wholeness." The key GST notion of equifinality, or as Pouvreau phrases it, "the independence of the final state in relation to the initial state and to routes undertaken in relation to reach it" (44), emerged from Bertalanffy's focus on the issue of organic growth in the mid-thirties, an issue he henceforth pursued in part of its ability to be quantified. Indeed, the latter concern was a career-long inclination of Bertalanffy in his attempt to put biology onto a firmer mathematical and scientific footing so that it would amount to a complete *systemotology* consisting of quantifiable factors, a methodology of systemic modeling consisting also of a way to codify transfers of models among different disciplines, an attempt to avoid superficial analogies in favor of highlighting deeper "homologies" all towards his own interpretation of a *unity of the sciences* differing from the more well-known approach of Carnap, Hempel, and Neurath. This also showed up in Bertalanffy's fascination with the work of Lotka and Volterra whose population dynamics predator/prey models have been so important in dynamical systems theory.

Opportunistic Nazism

As I stated above, I had never really given much consideration one way or the other to Bertalanffy's life so it comes as a total and upsetting revelation to me how deeply enmeshed his career was with National Socialism. To that end, for example, he went out of his way to emphasize his Aryan purity of his royal Hungarian blood line. To further his career ambitions, in particular to secure a good position in the highly regarded Department of Zoology at the University of Vienna, Bertalanffy decided to join the National Socialist Party in the Fall of 1938. In his application form, Pouvreau indicates, he described how his biological research and writings contributed to the "scientific development of the National Socialist vision of the world" (60). He went so far as to claim that his career hindrances before the *Anschluss* of the Nazis into Austria were due to his sympathies for National Socialism exhibited in this work. The official in charge of his application admitted that he had already known of Bertalanffy's sympathies for National Socialism before the *Anschluss*.

To be fair, Pouvreau indicates that before Hitler came to power in 1933, Bertalanffy

defended positions that were ideologically opposed to the official doctrines of Nazism. For instance, he had called attention to what he believed were the conceptual insufficiencies of the so-called scientific foundations of "racial hygiene" and the concomitant commitment to eugenics. He also critiqued the attempt to bring back a "barbaric" mysticism which Hitler was to proclaim. At the same time, Bertalanffy's political leanings were quite akin to Nazi ideology in their anti-democracy, anti-liberalism, and anti-socialism perspectives. Bertalanffy was convinced of the current decadency of a materialistic and soulless world, indeed, he was an avid enthusiast of Spengler's *Decline of the West*. A large part of this reactionary commitment persisted throughout his life, later on finding expression in his similar deprecations of the materialistic, cultural desert of American and Canadian life, a rather shocking attitude given the surfeit of opportunities these two countries offered Bertalanffy, but of course they were not up to the level to which he felt entitled.

Another strong Nazi connection was Bertalanffy's lasting friendship, even after WWII, with Alfred von Auersperg who became an SS physician after the *Anschluss*, was notorious during the War, and after which escaped to Chile along with many other Nazis who hid out in South America (the basis of the film *The Boys from Brazil*). He was no doubt one of the influences on the many reactionary generalisimos who took over Central and South American democracies in military juntas.

Pouvreau points out a chilling piece of reversal on Bertalanffy's part of his earlier rejection of the doctrine of wholeness because of its connection with vitalism, a position which he rejected in 1933 in an article, "The organism appears no longer, as earlier in the theory of the "cell state", as a republic of autonomous parts with the same rights, but rather like a hierarchical structure, dominated on each level by the Führer principle" (65). This ambivalent relation to the idea of wholeness on Bertalanffy's part is one of the reasons for the title of Pouvreau's biography: "The Dialectical Tragedy of the Concept of Wholeness," a phrase that Bertalanffy had coined in another context.

Another example was how in his sixth book, *From the Molecule to the World of Organisms* (which incidentally introduced the important GST term *Fliessgleichgewicht* or steady state) Bertalanffy linked his theory of organic growth with diverse anthropological theories that were being used to support an Anti-Semitic perspective. Perhaps the most overtly Nazi writing of the period was Bertalanffy's article in *Der Biologe* (*The Biologist*), an official organ of National-Socialist biological ideology. In this article he wrote of how certain racial dispositions aid in the development of a genuine scientific advance, "a specific product of the Nordic spirit."

This is certainly a distorted perspective on the development of German science given the unusually significant role Jews played in furthering German physics, chemistry, mathematics, and other sciences. In another article of the same period there can be found similar racist intimations. Here, Bertalanffy reminds me of Carl Jung's similar racial remarks in his writings during the time of the Third Reich, but at least in the case of Jung, it has been discovered that he played the role of a British spy at the same time.

Pouvreau points out that these few remarks were the only racist remarks in any of Bertalanffy's very numerous publications during his long career although there were undoubtedly helpful to his career under National Socialism. He also cleverly managed to avoid being drafted into military service until near the end of the war, and then into a military hospital. When he returned to Vienna with his family at the end of the War, they found only ashes, his entire library of 6,000 books and 8,000 papers destroyed along with unfinished manuscripts of his own (I guess he could have used some hard disc storage in a cloud computing virtual office!). Perhaps that fact would engender sympathy for some, however, for me, it only evokes "good riddance"!

Pouvreau concludes that Bertalanffy's various flirtations with National Socialist ideology were little more than opportunistic appropriations to further his own career. For instance, the Dean's report that recommended Bertalanffy to a full time position at the University of Vienna contended that his membership in the National Socialist Party qualified him to the post. And after the war, Bertalanffy applied his not inconsiderable skills at manipulation and fabrication in denying the full extent to which he was a party member and contributor to Nazi propaganda.

In this context it is helpful to turn to more general Nazi ideological appropriation of holistic conceptions extant at the end of the nineteenth and early part of the twentieth century, a connection told with great rigor by the cultural historian Anne Harrington (1999—Bertalanffy clearly qualifies as one of these connections although not a major one). One example of the Nazi appropriation of the idea of wholeness (again an allusion to the title of the biography) is the way the supposed supremacy of the whole over its parts could justify actions taken against defective parts, i.e., genocide of such defective parts as Jews, Gypsies, the infirm, according to the principle of the supremacy of the state as a whole over its parts, in other words, the "Volks-body" is an organic whole with a life of its own and laws of its own, and thus demands eugenics to purify the Volks-body. Himmler it seems was quite enamored of this kind of holist ideology and set up hospitals of purification, as well as the growth of medicinal herbs by the slave populations of Dachau.

Some people (ignorant and uninformed to be sure) may say that I don't have a right to form a moral judgment about Bertalanffy since who knows what I would have done if I had been in his shoes. Well, unfortunately, that is actually one thing I can be absolutely certain of, since, if indeed, I were in his shoes as the Nazi movement swept into Vienna (already and still today a virulent seed bed of anti-Semitism), I know exactly what I would have done, or, to be more precise, what would have happened to me. From talking with Jewish Viennese holocaust survivors such as my secretary, there is a near probability of one that it was either Dachau or Buchenwald for me earlier in the war and Auschwitz by 1944 and 1945. This is precisely where moral relativism ends, and why it is not surprising to find out how so many inspirers of postmodernism were in fact true-in-the-blood Nazis.

Harrington also presents a striking counterexample to moral cowardice where a holist perspective, even to the extent of an entire biological theory of vitalism, was an issue but took a different direction, the case of vitalist Hans Driesch. At the beginning of the Nazi period, Driesch's vitalism, certainly the most rigorous and systematic of the vitalist offerings in the late nineteenth and early twentieth centuries was a virtual fount of holistic imagery taken up by Nazi ideology. Yet Harrington emphasizes that the Nazi interest in his work was in direct antithesis to Driesch's own strong opposition to the Nazi regime. Driesch in fact appealed to his own holistic stance in order to support a pacifist, humanistic, democratic type of politics. Driesch argued that the only genuine whole to which humanity belonged was not to a particular nation state but to humanity as a whole. Yet even the courageous Hans Driesch did little to help his Jewish comrades from being gassed.

So another thing that is certain for me is that I will never again be able to read anything about GST, or by or about Bertalanffy in the same light. I thank David Pouvreau for providing this valuable service.